

What is claimed is:

1. A method for stiffening or supporting foldable arrays of devices comprising the steps of:
providing an arrangement of a plurality of devices having first sides and having second sides opposite said first sides;
connecting a first hinging means for bracing to a first side of a first device; ^{or d}
connecting a second hinging means for bracing to a first side of a second device.
2. The method of claim 1, wherein said device comprises a device selected from the group consisting of an electrochemical device, an electronic device, electro-mechanical device, a bio-electric device, a bio-chemical device, a bio-mechanical device, and ~~an~~ a mechanical-chemical device.
3. The method of claim 2, wherein said electrochemical device comprises a thin-film electrochemical device.
4. The method of claim 1, wherein said first device and said second device are adapted to fold to at least an open and a collapsed position.
5. The method of claim ⁴~~2~~, wherein said collapsed position comprises a position selected from ^{the} ~~a~~ group consisting of an inwardly folded position and an outwardly folded position.
6. The method of claim 1, further comprising the step of connecting an edge stiffener to a portion of an edge of one or more of said devices.
7. The method of claim 6, wherein said edge stiffener is adapted to provide deployment force.
8. The method of claim 1, further comprising the step of connecting an edge stiffener between a pair of said devices.
9. The method of claim 6, wherein said edge stiffener is adapted to situate a pair or more of said devices in an open position.
10. The method of claim 1, further comprising the step of connecting a hinge between said first device and said second device.

11. The method of claim 10, wherein said hinge comprises a hinge selected from the group consisting of a conventional hinge, a conventional hinge with integrated torsion spring, a polyimide fold, and a carpenter hinge.

12. The method of claim 10, wherein said hinge is adapted to situate a pair or more of said devices in an open position.

13. The method of claim 10, wherein said hinge is adapted to provide deployment force to said array.

14. The method of claim 1, wherein one or more of said devices is flexible.

15. The method of claim 1, wherein one or more of said devices is rigid.

16. The method of claim 1, wherein said plurality of devices comprises one or more devices selected from ^{the} a group consisting of an inactive substrate, a solar energy cell, a direct conversion light antenna, and a radio-frequency identification tag.

17. The method of claim 16, wherein said solar energy cell comprises a thin-film photovoltaic cell.

18. The method of claim 17, wherein said thin-film photovoltaic cell comprises a copper-indium-gallium-selenide cell.

19. The method of claim 1, wherein said arrangement of a plurality of devices comprises a plurality of devices arranged on a single substrate.

20. The method of claim 19, wherein said substrate is flexible.

21. The method of claim 1, wherein said arrangement comprises a grid-like array of devices.

22. The method of claim 1, further comprising the step of connecting a third hinging means for bracing to a device and to a hinging means for bracing, wherein a portion of said third hinging means for bracing is adapted to fold.

23. The method of claim 1, further comprising the step of providing an electrostatic discharge layer on at least a substantial portion of said array of devices and means ^{↑ which one} for bracing.

24. An apparatus for stiffening foldable arrays of devices comprising:
an arrangement of a plurality of devices;
a first brace member hingedly connected to a first device; and
a second brace member hingedly connected to a second device and to said first brace member.

25. The apparatus of claim 24, wherein said device comprises a device selected from the group consisting of an electrochemical device, an electronic device, electro-mechanical device, a bio-electric device, a bio-chemical device, a bio-mechanical device, and ^{or a} mechanical-chemical device.

26. The apparatus of claim 25, wherein said electrochemical device comprises a thin-film electrochemical device.

27. The apparatus of claim 24, wherein said first device and said second device are adapted to fold to at least an open and a collapsed position.

28. The apparatus of claim 27, wherein said collapsed position comprises a position selected from ^{the} a group consisting of an inwardly folded position and an outwardly folded position.

29. The apparatus of claim 24, further comprising an edge stiffener at an edge of one or more of said devices.

30. The apparatus of claim 29, wherein said edge stiffener is adapted to situate a pair or more of said devices in an open position.

31. The apparatus of claim 24, further comprising an edge stiffener between a pair of said devices.

32. The apparatus of claim 24, further comprising a hinge connecting said first device and said second device.

33. The apparatus of claim 32, wherein said hinge comprises a hinge selected from the group consisting of a conventional hinge, a conventional hinge with integrated torsion spring, a polyimide fold, and a carpenter hinge.

34. The apparatus of claim 32, wherein said hinge is adapted to situate a pair or more of said devices in an open position.

35. The apparatus of claim 32, wherein said hinge is adapted to provide deployment force to said array.

36. The apparatus of claim 24, wherein one or more of said devices is flexible.

37. The apparatus of claim 24, wherein one or more of said devices is rigid.

38. The apparatus of claim 24, wherein said plurality of devices comprises one or more devices selected from ~~a~~ group consisting of an inactive substrate, a solar energy cell, a direct conversion light antenna, and a radio frequency identification tag.

39. The apparatus of claim 38, wherein said solar energy cell comprises a thin-film photovoltaic cell.

40. The apparatus of claim 39, wherein said thin-film photovoltaic cell comprises a copper-indium-gallium-selenide photovoltaic cell.

41. The apparatus of claim 24, wherein said arrangement of a plurality of devices comprises a plurality of devices arranged on a single substrate.

42. The apparatus of claim 41, wherein said substrate is flexible.

43. The apparatus of claim 24, wherein said arrangement comprises a grid-like ~~array~~ of devices.

44. The apparatus of claim 24, further comprising a third bracing member hingedly attached to a brace member and to a device, wherein said third bracing member comprises at least one foldable portion.

45. The apparatus of claim 24, further comprising an electrostatic discharge layer covering at least a substantial portion of said ~~array~~ of devices and brace members.

46. A method for integrating passive deployment of a plurality of devices comprising the steps of:

providing an arrangement of a plurality of devices, at least a portion of said devices being foldably attached to one another;

attaching a pair of hingedly connected bracing members to a pair of said foldably connected devices; and

attaching a means for situating a pair of said devices in an open position to a plurality of said devices.

47. The method of claim 46, wherein said means for situating comprise means selected from ^{the} a group consisting of an edge stiffener, and a carpenter hinge.

48. An apparatus for integrated passive deployment comprising:

an arrangement of a plurality of devices, at least a portion of said devices being foldably attached to one another;

a pair of hingedly connected bracing members attached to a pair of said foldably connected devices; and

a means for situating a pair of said devices in an open position attached to a plurality of said devices.

49. The apparatus of claim 48, wherein said means for situating comprise means selected from ^{the} a group consisting of an edge stiffener, and a carpenter hinge.

50. A method for integrating cabling with stiffening or supporting means comprising the steps of:

providing an arrangement of a plurality of devices, at least a portion of said devices being foldably attached to one another; and

attaching a pair of hingedly connected bracing members to a pair of said foldably attached devices.

51. The method of claim 50, wherein said pair of hingedly connected bracing members comprises means for transmitting electricity.

52. The method of claim 51, wherein said means for transmitting electricity comprises means for transmitting electrical energy to or from a power source.

53. The method of claim 51, wherein said means for transmitting electricity comprises means for communicating an electric signal.

54. The method of claim 51, wherein said means for transmitting electricity comprises flex circuit technology.

55. The method of claim 51, further comprising one or more electronic circuit selected from the group consisting of a filter circuit, a boost circuit, a transformer circuit, an amplifier circuit, and an automatic bypass circuit.

56. An apparatus for integrated cabling with stiffening or supporting means comprising: an arrangement of a plurality of devices, at least a portion of said devices being foldably attached to one another; and a pair of hingedly connected bracing members attached to a pair of said foldably attached devices.

57. The apparatus of claim 56, wherein said pair of hingedly connected bracing members comprises means for transmitting electricity.

58. The apparatus of claim 57, wherein said means for transmitting electricity comprises means for transmitting electrical energy to or from a power source.

59. The apparatus of claim 57, wherein said means for transmitting electricity comprises means for communicating an electric signal.

60. The apparatus of claim 57, wherein said means for transmitting electricity comprises flex circuit technology.

61. The apparatus of claim 57, further comprising one or more electronic circuit selected from the group consisting of a filter circuit, a boost circuit, a transformer circuit, an amplifier circuit, and an automatic bypass circuit.

62. A method for manufacturing a deployable array of devices comprising the steps of: providing an arrangement of a plurality of devices, at least a portion of said devices being foldably attached to one another; attaching at least a pair of hingedly connected bracing members to at least a pair of

said foldably attached devices; and

collapsing said arrangement of a plurality of devices and said pair of hingedly connected bracing members.

63. The method of claim 62, wherein said step of collapsing comprises at least one step of folding.

64. The method of claim 63, further comprising at least one step of rolling after said at least one step of folding.

65. An apparatus for use as a deployable array of devices comprising:

an arrangement of a plurality of devices, at least a portion of said devices being foldably attached to one another; and

at least a pair of hingedly connected bracing members attached to at least a pair of said foldably connected devices, wherein said arrangement of a plurality of devices and said pair of hingedly connected bracing members is collapsed.

66. The apparatus of claim 65, wherein said arrangement of a plurality of devices and said pair of hingedly connected bracing members is collapsed using a collapsing technique employing at least one step of folding.

67. The apparatus of claim 66, wherein said collapsing technique further comprises at least one step of rolling.